TABLE 1
FORMER FRANK 25-42 TANK BATTERY
SOIL ANALYTICAL RESULTS SUMMARY TABLE

Sample ID	Date Sampled	Depth (ft. bgs)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Naphthalene (mg/kg)	TPH [2] (mg/kg)	pH (units)	EC (mmhos/cm)
COGCC Table 910-1 Soil Standard (mg/kg) [1]			**0.17**	**85**	**100**	**175**	**23**	**500**	**6-9**	**<4**
SS01 @ 5'	1/29/2020	5	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	7.67	0.0721

Notes:
1. Standards for soil are taken from 2 CCR 404-1, Table 910-1, effective May 1, 2018.
2. TPH - Total volatile and extractable petroleum hydrocarbons. Value calculated by adding GRO and DRO concentrations.
COGCC = Colorado Oil and Gas Conservation Commission
(<) = Analytical result is less than the indicated laboratory reporting limit.
GRO = Total volatile petroleum hydrocarbons - gasoline range organics
DRO = Total extractable petroleum hydrocarbons - diesel range organics
mg/kg = Milligrams per kilogram
ft. = Feet
bgs = Below ground surface
EC = Electrical conductivity
mmhos/cm = millimhos per centimeter

TABLE 2
FORMER FRANK 25-42 TANK BATTERY
VOC CONCENTRATIONS SUMMARY TABLE

Sample ID	Date Sampled	Depth (ft. bgs)	Sample Location[1]	Field Measured VOC Concentration[2] (ppm)
SS01 @ 5'	1/29/2020	5	Base	1.4
SS02 @ 3'	1/29/2020	3	North Sidewall	1.2
SS03 @ 3'	1/29/2020	3	West Sidewall	1.0
SS04 @ 3'	1/29/2020	3	South Sidewall	0.8
SS05 @ 3'	1/29/2020	3	East Sidewall	0.9

Notes:

1. Refers to the sample location within the excavation area below the former produced water vessel.
2. Volatile organic compound (VOC) concentrations are measured in the field using a photoionization detector (PID).

ft. = Feet
bgs = Below ground surface
ppm = Parts per million
= Sample submitted for laboratory analysis.

ATTACHMENT A

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

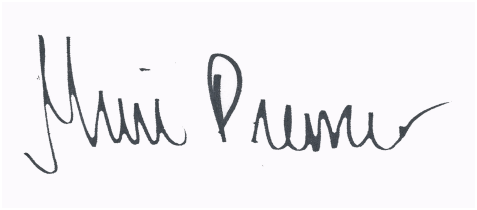
February 05, 2020

Mark Longhurst
PDC Energy
1775 Sherman St. STE. 3000
Denver, CO 80203

RE: Frank 25-42
Work Order #2001338

Enclosed are the results of analyses for samples received by Summit Scientific on 01/29/20 18:47. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Muri Premer For Paul Shrewsbury
President

S2

PDC Energy 1775 Sherman St. STE. 3000 Denver CO, 80203	Project: Frank 25-42 Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 02/05/20 16:28

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS01@5'	2001338-01	Soil	01/29/20 12:50	01/29/20 18:47

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

2001338

Summit Scientific

S_2

4653 Table Mountain Drive ♦ Golden, Colorado 80403
303-277-9310

Client:	PDC / Tasman	Project Manager:	Mark Longhurst
Address:	6855 W 119th Ave	E-Mail:	mark.longhurst@PDCE.com
City/State/Zip:	Broomfield/ CO/ 80020		
Phone:	303-487-1228	Project Name:	Frank 25-42
Sampler Name:	Max Dahlgren	Project Number:	

					Preservative				Matrix				Analysis Requested								Special Instructions
ID	Sample Description	Date Sampled	Time Sampled	# of containers	HCl	HNO3	None	Other ___	Water	Soil	Air-Canister #	Other ___	8260 BTEX	8260B GBTEXN	8015 DRO	pH / EC		Hold			
1	SS01 @ 5'	1/29/20	1250	1			X			X				X	X	X					
2	SS02 @ 3'		1255															X			
3	SS03 @ 3'		1300																		
4	SS04 @ 3'		1305																		
5	SS05 @ 3'		1310																		
6																					
7																					
8																					
9																					
10																					

Relinquished by:	Date/Time: 1/29/20 1700	Received by: Tasman's Lock Box	Date/Time:	**Turn Around Time** (Check): Same Day ___ 24 hours ___ 48 hours ___ 72 hours ___ Standard X
Relinquished by: Tasman's Lock Box	Date/Time:	Received by: 1-29-20	Date/Time: 6:47	**Sample Integrity:** Temperature Upon Receipt: 4.1
Relinquished by:	Date/Time:	Received by:	Date/Time:	Samples Intact: (Yes) No

Notes:

Sample Receipt Checklist

S2 Work Order 2001338

Client: PDC / Tasman Client Project ID: Frank 25-42

Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other_____ Airbill #: _____

Matrix (check all that apply): _____Air ___X___Soil/Solid _____Water ____Other:_____ (Describe)

Temp (°C)	4.1

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C [(1)]? NOTE: If samples are delivered the same day of sampling, this requirement is met provided that there is evidence that cooling has begun.	✓			
Were all samples received intact [(1)]?	✓			
Was adequate sample volume provided [(1)]?	✓			
If custody seals are present, are they intact [(1)]?			✓	
Are samples with holding times due within 48 hours sample due within 48 hours present?			✓	
Is a chain-of-custody (COC) form present and filled out completely [(1)]?	✓			
Does the COC agree with the number and type of sample bottles received [(1)]?	✓			
Do the sample IDs on the bottle labels match the COC [(1)]?	✓			
Is the COC properly relinquished by the client w/ date and time recorded [(1)]?	✓			
For volatiles in water – is there headspace present? **If yes, contact client and note in narrative.**			✓	
Are samples preserved that require preservation **(excluding cooling)** [(1)]? Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect			✓	
If samples are acid preserved for metals, is the pH ≤ 2[(1)]? Record the pH in Comments.			✓	
If dissolved metals are requested, were samples field filtered?			✓	
Additional Comments (if any):				

[(1)] If NO, then contact the client before proceeding with analysis and note in case narrative.

CS — Custodian Printed Name or Initials

Signature of Custodian

1-29-20 6:30 — Date/Time

S2

PDC Energy 1775 Sherman St. STE. 3000 Denver CO, 80203	Project: Frank 25-42 Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 02/05/20 16:28

SS01@5'

2001338-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **01/29/20 12:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	2001407	01/30/20	01/31/20	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **01/29/20 12:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*118 %*	*23-173*		"	"	"	"	
Surrogate: Toluene-d8		*101 %*	*20-170*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*104 %*	*21-167*		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **01/29/20 12:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	2001408	01/30/20	01/30/20	EPA 8015M	

Date Sampled: **01/29/20 12:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		*107 %*	*30-150*		"	"	"	"	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **01/29/20 12:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	**7.67**		pH Units	1	2001402	01/30/20	01/30/20	EPA 9045D	

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

S2

PDC Energy 1775 Sherman St. STE. 3000 Denver CO, 80203	Project: Frank 25-42 Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 02/05/20 16:28

SS01@5'

2001338-01 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

Specific Conductance by EPA Method 120.1

Date Sampled: **01/29/20 12:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	**0.0721**	0.0100	mmhos/cm	1	2001403	01/30/20	01/30/20	EPA 120.1	

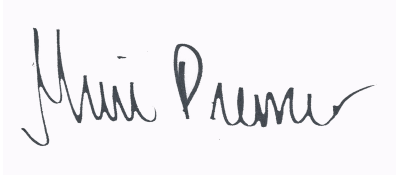
S2

PDC Energy 1775 Sherman St. STE. 3000 Denver CO, 80203	Project: Frank 25-42 Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 02/05/20 16:28

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2001407 - EPA 5030 Soil MS										
Blank (2001407-BLK1)				Prepared: 01/30/20 Analyzed: 01/31/20						
Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Naphthalene	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	*0.0429*		"	*0.0400*		*107*	*23-173*			
Surrogate: Toluene-d8	*0.0400*		"	*0.0400*		*100*	*20-170*			
Surrogate: 4-Bromofluorobenzene	*0.0409*		"	*0.0400*		*102*	*21-167*			
LCS (2001407-BS1)				Prepared: 01/30/20 Analyzed: 01/31/20						
Benzene	0.0721	0.0020	mg/kg	0.100		72.1	70-130			
Toluene	0.0893	0.0050	"	0.100		89.3	70-130			
Ethylbenzene	0.0974	0.0050	"	0.100		97.4	70-130			
m,p-Xylene	0.196	0.010	"	0.200		98.2	70-130			
o-Xylene	0.0891	0.0050	"	0.100		89.1	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.0380*		"	*0.0400*		*95.0*	*23-173*			
Surrogate: Toluene-d8	*0.0407*		"	*0.0400*		*102*	*20-170*			
Surrogate: 4-Bromofluorobenzene	*0.0415*		"	*0.0400*		*104*	*21-167*			
Matrix Spike (2001407-MS1)		**Source: 2001337-01**		Prepared: 01/30/20 Analyzed: 01/31/20						
Benzene	0.0984	0.0020	mg/kg	0.100	ND	98.4	70-130			
Toluene	0.0849	0.0050	"	0.100	ND	84.9	70-130			
Ethylbenzene	0.0935	0.0050	"	0.100	ND	93.5	70-130			
m,p-Xylene	0.185	0.010	"	0.200	ND	92.7	70-130			
o-Xylene	0.0873	0.0050	"	0.100	ND	87.3	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.0399*		"	*0.0400*		*99.8*	*23-173*			
Surrogate: Toluene-d8	*0.0406*		"	*0.0400*		*101*	*20-170*			
Surrogate: 4-Bromofluorobenzene	*0.0412*		"	*0.0400*		*103*	*21-167*			



S2

PDC Energy 1775 Sherman St. STE. 3000 Denver CO, 80203	Project: Frank 25-42 Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 02/05/20 16:28

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2001407 - EPA 5030 Soil MS										
Matrix Spike Dup (2001407-MSD1)	**Source: 2001337-01**			Prepared: 01/30/20 Analyzed: 01/31/20						
Benzene	0.0729	0.0020	mg/kg	0.100	ND	72.9	70-130	29.8	30	
Toluene	0.0963	0.0050	"	0.100	ND	96.3	70-130	12.6	30	
Ethylbenzene	0.103	0.0050	"	0.100	ND	103	70-130	9.82	30	
m,p-Xylene	0.206	0.010	"	0.200	ND	103	70-130	10.5	30	
o-Xylene	0.0966	0.0050	"	0.100	ND	96.6	70-130	10.1	30	
Surrogate: 1,2-Dichloroethane-d4	*0.0394*		*"*	*0.0400*		*98.5*	*23-173*			
Surrogate: Toluene-d8	*0.0446*		*"*	*0.0400*		*112*	*20-170*			
Surrogate: 4-Bromofluorobenzene	*0.0428*		*"*	*0.0400*		*107*	*21-167*			

Summit Scientific

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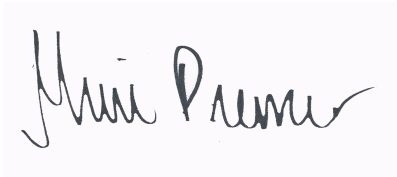
S2

PDC Energy 1775 Sherman St. STE. 3000 Denver CO, 80203	Project: Frank 25-42 Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 02/05/20 16:28

Extractable Petroleum Hydrocarbons by 8015 - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2001408 - EPA 3550A										
Blank (2001408-BLK1)				Prepared & Analyzed: 01/30/20						
C10-C28 (DRO)	ND	50	mg/kg							
LCS (2001408-BS1)				Prepared & Analyzed: 01/30/20						
C10-C28 (DRO)	496	50	mg/kg	500		99.3	70-130			
Matrix Spike (2001408-MS1)	**Source: 2001337-01**			Prepared & Analyzed: 01/30/20						
C10-C28 (DRO)	506	50	mg/kg	500	12.6	98.6	70-130			
Matrix Spike Dup (2001408-MSD1)	**Source: 2001337-01**			Prepared & Analyzed: 01/30/20						
C10-C28 (DRO)	438	50	mg/kg	500	12.6	85.1	70-130	14.3	20	



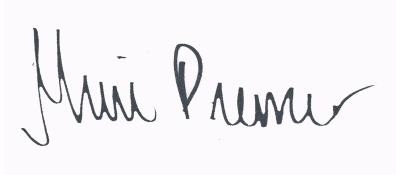
S2

PDC Energy 1775 Sherman St. STE. 3000 Denver CO, 80203	Project: Frank 25-42 Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 02/05/20 16:28

Physical Parameters by APHA/ASTM/EPA Methods - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2001402 - General Preparation										
LCS (2001402-BS1)				Prepared & Analyzed: 01/30/20						
pH	9.21		pH Units	9.18		100	95-105			
Duplicate (2001402-DUP1)		**Source: 2001211-01**		Prepared & Analyzed: 01/30/20						
pH	8.26		pH Units		8.23			0.364	20	



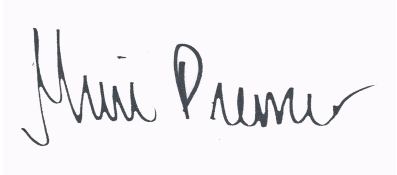
S2

PDC Energy 1775 Sherman St. STE. 3000 Denver CO, 80203	Project: Frank 25-42 Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 02/05/20 16:28

Specific Conductance by EPA Method 120.1 - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2001403 - General Preparation										
Blank (2001403-BLK1)				Prepared & Analyzed: 01/30/20						
Specific Conductance (EC)	ND	0.0100	mmhos/cm							
LCS (2001403-BS1)				Prepared & Analyzed: 01/30/20						
Specific Conductance (EC)	0.801	0.0100	mmhos/cm	0.750		107	90-110			
Duplicate (2001403-DUP1)		**Source: 2001211-01**		Prepared & Analyzed: 01/30/20						
Specific Conductance (EC)	1.11	0.0100	mmhos/cm		1.11			0.0901	20	



S2

PDC Energy 1775 Sherman St. STE. 3000 Denver CO, 80203	Project: Frank 25-42 Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 02/05/20 16:28

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference